

REMARKS

In the Office Action dated November 17, 2008, Claim 10 is pending and under consideration. Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant regards as the invention. Claim 10 stands rejected, under 35 U.S.C § 103(a), as allegedly unpatentable over U.S. Patent Publication No. 2002/0102629 to Greenbaum, et al. ("Greenbaum et al.") in view of U.S. Patent No. 4,347,133 to Brigante ("Brigante"), U.S. Patent No. 4,942,303 to Kolber et al. ("Kolber et al."), U.S. Patent No. 5,645,799 to Shah et al. ("Shah et al."), and U.S. Patent No. 6,029,076 to Fiddian-Green et al. ("Fiddian-Green et al.").

This Response addresses the Examiner's rejections. Applicants therefore respectfully submit that the present application is in condition for allowance. Favorable consideration of all pending claims is therefore respectfully requested.

The Claimed Invention

Before addressing the specific grounds of rejection raised in the Office Action, Applicants take this opportunity to make the following remarks regarding the Applicants' claimed invention. Applicants' claimed device provides remote assessments of possible toxic contamination of water sources by measuring the fluorescence of the water source. The claimed device includes an electronics package in combination with a systems of valves and drains that provides a continuous flow of consecutive water samples to the flourometer so that less than 10% of the newest water sample is mixed with the prior water sample, hence increasing sensitivity while decreasing the time to conduct the fluorescence analysis.

In an effort to reflect this aspect of the invention, Applicants have provided new Claim

11. Support for new Claim 11 is found throughout Applicants' specification, as follows:

A device for detecting toxic agents in a liquid medium comprising:

a body (*See reference number 10 in Figure 2*) comprising at least one portion that is submerged into a liquid medium (*See reference number 14 in Figure 2*), an inlet for introducing a sample of the liquid medium to an interior of the body (*See reference number 42 in Figure 2*), and an outlet for ejecting the sample of the liquid medium (*See reference number 50 in Figure 2*);

a first reservoir (*See reference number 102*) within said body comprising a first opening in an upper surface of the first reservoir (*See page 5, lines 17-19, of specification*), a second opening present in a sidewall of the first reservoir (*See page 5, lines 29-30, of specification*), and a first reservoir drain present in a base surface of the first reservoir (*See reference number 114 of Figure 2 and page 6, lines 4-7, of specification*), wherein the inlet in the body is in fluid communication to the first opening of the first reservoir (*See page 5, lines 16-21, of Specification*);

a fluorometer (*See reference number 46 of Figure 2*) for measuring photosynthetic activity of organisms in the sample of the liquid medium (*See page 4, lines 10-15, of the specification*), the fluorometer comprising an inlet in fluid communication with the second opening of the first reservoir (*See reference number 110 in Figure 2, and page 5, lines 29-33, of the specification*) and a fluorometer drain (*See reference number 116 in Figure 2*);

a pump in fluid communication with the fluorometer drain, the first reservoir drain, and the outlet of the body (*See reference number 40 in Figure 2*);

a valve system configured to open and close the fluorometer drain and the first reservoir drain (*See reference number 116 in Figure 2*); and

an electronics package (*See reference number 52 in Figure 2*) configured to be in communication with the valve system (*See reference number 118 in Figure 2, and page 6, lines 4-7*), the pump and the fluorometer (*See reference number 54, 56 of Figure 2, and page 4, lines 13-15*), such that when the sample of the liquid medium is being drawn into the first reservoir the valve system closes the fluorometer drain and opens the first reservoir drain, and when the sample of the liquid medium is being drawn into the fluorometer for the measuring of the photosynthetic activity of organisms the valve system closes the first reservoir drain and opens the fluorometer drain, and when the sample of the liquid medium is being expelled through the outlet of the body, the valve system closes the fluorometer drain and opens the first reservoir drain so that less than 10% of a

subsequent sample is mixed with the sample of the liquid medium. (*See page 6, lines 24-30, and page 7, lines 1-23*).

Applicants have also added new Claims 12-23 being dependent on new Claim 11. Support for new Claim 12 is found on page 2, lines 30-31, of Applicants' disclosure. Support for new Claims 13 and 14 is found on page 5, lines 17-26, of Applicants' disclosure. Support for new Claims 15 and 16 is found on page 5, lines 16-21, of Applicants' disclosure. Support for new Claim 17 is found on page 5, lines 23-27, of Applicants' disclosure. Support for new Claims 18 and 19 is found on page 5, line 19, to page 6, line 2, of Applicants' disclosure. Support for new Claim 20 is found on page 6, lines 29-30, of Applicants' disclosure. Support for new Claim 21 is found on page 5, lines 21-23, page 6, lines 9-11, and Figure 2 of Applicants' disclosure. Support for new Claim 22 is found on page 4, lines 23-24, of Applicants' disclosure. Support for new Claim 23 is found on page 7, lines 30-31, of Applicants' disclosure. Support for new Claim 24 is found on page 7, lines 30-31, of Applicants' disclosure. Support for new Claim 25 is found on page 7, line 16, of Applicants' disclosure.

Since the above amendments are fully supported by the Applicants' specification, and do not introduce any new matter into the application, entry thereof is respectfully requested.

Applicants have also cancelled Claim 10.

35 U.S.C. § 112, Second Paragraph, Rejection

Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant regards as the invention.

Applicants submit that new Claims 11-23 clearly and distinctly claim the subject matter that the Applicant regards as the invention. Referring to page 2 of the outstanding Office Action,

Applicants observe that the Examiner has objected to the use of “means-plus function” language that was recited in Claim 10, which is now cancelled. Applicants note that new Claims 11-23 do not include mean plus function language.

Applicants submit that the rejection under 37 C.F.R. § 112, second paragraph, has been obviated, and respectfully request withdrawal thereof.

35 U.S.C. § 103 (a) Rejection

Claim 10 stands rejected, under 35 U.S.C § 103(a), as allegedly unpatentable over U.S. Patent Publication No. 2002/0102629 to Greenbaum, et al. (“Greenbaum et al.”) in view of U.S. Patent No. 4,347,133 to Brigante (“Brigante”), U.S. Patent No. 4,942,303 to Kolber et al. (“Kolber et al.”), U.S. Patent No. 5,645,799 to Shah et al. (“Shah et al.”), and U.S. Patent No. 6,029,076 to Fiddian-Greene et al. (“Fiddian-Greene et al.”). Applicants traverse the rejection and submit the following.

"To establish a prima facie case of obviousness of a claimed invention all the claimed limitations must be taught or suggested by the prior art". *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 44, 496 (CCPA 1970). Applicants submit that the applied prior art fails to teach or suggest all the claim limitations as presently recited in new independent claim 11. In particular, the cited references, taken alone or in combination, do not teach or suggest a device for detecting toxic agents in a liquid medium that utilizes an electronics package configured to control a valve system to dictate the flow of the liquid medium to a fluorometer so that less than 10% of a subsequent sample of liquid medium is mixed with the previous sample of the liquid medium that was analyzed by the fluorometer, as recited in Claim 11.

Referring to pages 3 and 4 of the Office Action, the Examiner admits that Greenbaum et al. fails to disclose a device that includes a first reservoir or an electronics package to control

sampling rate, which are limitations that are recited in new Claim 11. Applicants further observe that because Greenbaum et al. fails to teach or suggest the claimed first reservoir and electronics package, Greenbaum et al. also fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as required by new Claim 11. Finally, Greenbaum et al. fails to teach or suggest a structure for detecting toxic agents that mixes only 10% or less of a subsequent sample of liquid medium with the previous samples of the liquid medium, as recited in new Claim 11.

In conclusion, Greenbaum et al. fails to render Applicants' claimed structure unpatentable, under 35 U.S.C. § 103(a), because Greenbaum et al. fails to teach or suggest at least four limitations that are recited in new Claim 11.

Brigante fails to cure the deficiencies of Greenbaum et al. Brigante discloses a land based electromagnetic ground water conditioning system, i.e., filtering system, and is far removed from Applicants' claimed device that detects the presence of toxins by measuring photosynthetic activity of organisms in a liquid medium. Referring to page 4 of the Office Action, the Examiner has cited Brigante to allegedly meet the limitation of a first reservoir that removes sedimentation from a water sample.

Applicants observe that Brigante fails to teach or suggest a structure for detecting toxic agents that mixes only 10% or less of a subsequent sample of liquid medium with the previous samples of the liquid medium, as recited in new Claim 11. Further, Applicants submit that Brigante leads away from a device that mixes only 10% or less of a subsequent sample of liquid medium with the previous samples of the liquid medium. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore and Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ

303 (Fed. Cir. 1983). More specifically, referring to Column 8, lines 31-36, Brigante discloses a filtering system in which water is continuously being cycled from the reservoir 24 through the filter 22, wherein the filtered water is kept in the reservoir until utilized. Because the water is being continuously filtered through the Brigante system, water that is entering the system is being mixed with prefiltered water in amounts greater than 10%. Brigante also fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as recited in new Claim 11.

Kolber et al. also fails to render Applicants' claimed device unpatentable, because Kolber et al. also fails to teach or suggest each and every aspect of Applicants' claimed invention, as recited in new Claim 11. Referring to pages 4 and 5 of the Office Action, the Examiner has cited Kolber et al. to allegedly meet the limitation of a second reservoir to analyze dark adaptation of photosynthetic organisms. Applicants note that the second reservoir is now recited in new Claim 18.

Kolber et al. fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as recited in new Claim 11. Referring to Column 9, lines 40-44, of Kolber et al., Kolber et al. discloses that flow of the sample liquid medium into the reservoir of the Kolber et al. structure is dictated by the length and the curvature of the passages into the reservoir. Therefore, because Kolber et al. rely upon the geometry of the passages to the reservoir to control the flow of the sample liquid medium, Kolber et al. fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as recited in new Claim 11.

Shah et al. also fails to teach or suggest each and every aspect of Applicants' claimed device, as recited in new Claim 11. Shah et al. discloses a method for optimizing the dosage of a

chemical waste water treatment agent. Applicants observe that the Examiner has relied upon Shah et al. to meet the limitation of an air purging means that was recited in Claim 10, which is now cancelled. Applicants note that the air purge tube is now recited in new Claim 17.

Shah et al. is directed to adding chemical agents to waste water and is far removed from Applicants' claimed device that detects the presence of toxins by measuring photosynthetic activity of organisms in a sample of a liquid medium. Applicants observe that Shah et al. fails to teach or suggest a structure for detecting toxic agents that mixes only 10% or less of a subsequent sample of liquid medium with the previous samples of the liquid medium, as recited in new Claim 11. Shah et al. also fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as recited in new Claim 11.

Fiddian-Greene et al. discloses catheters for use in medical diagnostics, e.g., measuring the PH from gases of organs, and is far removed from Applicants' claimed device that detects the presence of toxins by measuring photosynthetic activity of organisms from a liquid medium through fluorescence measurements. The Examiner relies upon Fiddian-Greene et al. for allegedly disclosing an electronics package to control sampling rate. More specifically, referring to the last paragraph of page 5 of the present Office Action, the Examiner states:

“With respect to the electronics package configured to control the sampling rate, Fiddian-Greene et al. disclose an analyzer that conducts continuous fluid sampling (see lines 20-25, col. 6). The reference discusses that the rate at which the sample can be analyzed continuously is limited by the rate at which the sample equilibrates. (see lines 50-60, col. 6). In light of the disclosure of Fiddian-Greene et al., it would have been obvious to one of ordinary skill in the art to configure the electronics package disclosed by Greenbaum et al. to control the sampling rate such that fresh sample being introduced into the holding chamber constitutes less than 10% of the total sample volume to ensure proper equilibration of the freshly collected water the sample.”

Applicants respectfully disagree and submit that Examiner has failed to provide a clear and explicit articulation of why one of ordinary skill in the art would apply Fiddian-Greene et al. to Greenbaum et al. in a manner that would provide a device for detecting toxic agents that mixes only 10% or less of a subsequent sample of liquid medium with the previous samples of the liquid medium, as recited in new Claim 11. Applicants refer the Examiner's attention to MPEP 2141, which states "the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit."

Referring to Column 6 of Fiddian-Greene et al., the portion of Fiddian-Greene et al. cited by the Examiner only discloses that measurements of CO₂ taken from a medium of air can be continuous or intermittent. The Examiner has not provided reasons why one of ordinary skill in the art would apply a reference directed to measurements of PH, i.e., measurement of hydrogen ions, from a gaseous medium, as disclosed in Fiddian-Greene et al., to a structure that is measuring photosynthetic activity of organisms in water through changes in the fluorescence, i.e., changes in the wavelength of light through the water sample, as taught by Greenbaum et al. Applicants submit that a teaching regarding equilibrium in a gas for purposes of measuring PH is unrelated to measurements of fluorescence for a liquid sample. Without providing a reason why one of skill in the art would combine these different measurement techniques, the Examiner has failed to establish a *prima facie* case of obviousness, under 35 U.S.C. §103.

Further, Applicants submit that there is no disclosure in Fiddian-Greene et al. of a structure for detecting toxic agents that mixes only 10% or less of a subsequent sample of liquid medium that is to be analyzed through a fluorometer with the previous samples of the liquid

medium, as recited in new Claim 11. Fiddian-Greene et al. also fails to teach or suggest a valve system that controls the flow of the sample liquid medium through the first reservoir and the fluorometer, as recited in new Claim 11.

In view of the foregoing, Applicants respectfully submit that the cited prior art references, taken in alone or in combination, fail to teach or suggest all the claim limitations as presently recited in new independent claim 11. Furthermore, the Examiner has not identified any reason for those skilled in the art to modify the teachings of the cited references in order to arrive at the claimed invention. Accordingly, it is respectfully submitted that the §103 rejections have been obviated and respectfully request withdrawal thereof.

Conclusion

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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